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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,589	05/03/2005	James A Proctor JR.	080588	2286
23596 7590 09/02/2008 QUALCOMM INCORPORATED 5775 MOREHOUSE DR. SAN DIEGO, CA 92121				
EXAMINER				
THIER, MICHAEL				
ART UNIT		PAPER NUMBER		
2617				
NOTIFICATION DATE		DELIVERY MODE		
09/02/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/533,589

Applicant(s)

PROCTOR ET AL.

Examiner

MICHAEL T. THIER

Art Unit

2617

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 18-30, 35-41, 45-49, 57 and 58 is/are rejected.
- 7) ☒ Claim(s) 14-17, 31-34, 42-44, 50-56 and 59-65 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 7/28/2008 have been fully considered but they are not persuasive.

Applicant argues, "Gainey fails to teach or suggest, at least, establishing a first threshold associated with a first of the at least two frequency channels and a second threshold associated with a second of the at least two frequency channels..." and further states that, "Gainey merely utilizes a single, predetermined threshold for indicating activity. A predetermined threshold would be merely pre-set, and not established..."

In response to applicant's argument, the examiner respectfully disagrees. Gainey teaches in par. 46 that the microprocessor 325, such as a DSP, can determine if a detected signal is above a predetermined threshold. He then recites that the detection circuits could be adjustable threshold controls (i.e. plural). The examiner understands that the system could use adjustable threshold controls on a plurality of channels, thus making for a plurality of thresholds (i.e. first and second). The examiner would further like to note that even if the thresholds are predetermined, or "pre-set" as argued by the applicant, they are still established at some point in time. In order for them to be predetermined, they must be "established". In any event, Gainey recites the use of adjustable threshold controls, which would clearly allow for establishing the thresholds when they are adjusted.

Applicant further argues against the examiners official notice of claims 2, 4,

19, 21, and 45, and states that the features in these claims are not common knowledge.

In response to applicant's argument, the examiner respectfully disagrees. As for claims 2 and 19, which recite the use of a saw tooth process to establish thresholds, this idea is commonly used and well known in the art. One of ordinary skill would have seen it obvious at the time of invention to utilize this technique, and in the art would be able to instantly and unquestionably demonstrate the process. For example, the examiner provides the Sumi (US 4081752) reference which teaches at column 24 lines 38-46 the idea of using a saw tooth control for establishing thresholds (i.e. maximum frequency using saw tooth control). Therefore, the official notice is justified.

As for claims 4 and 21, which recite the idea of a delay being less than a timeout parameter, this idea is commonly used and well known in the art. One of ordinary skill would have seen it obvious at the time of invention to utilize this technique, and in the art would be able to instantly and unquestionably demonstrate the process. For example, the examiner provides the Peterson (US 6574198) reference, which teaches at column 5 lines 4-18, the idea that a delay timer is set less than a time out period, to signify the loss of a signaling link. Therefore, the official notice is justified.

As for claim 45, which recites the idea of using a surface acoustic wave (SAW) filter and adding a delay using the SAW filter, this idea is commonly used and well known in the art. One of ordinary skill would have seen it obvious at the time of invention to utilize this technique, and in the art would be able to instantly and unquestionably demonstrate the process. For example, the examiner provides the

Weaver, Jr et al. (US 6108364) reference which teaches in column 6 lines 35-40 and column 10 lines 40-42 the use of a SAW filter to add a delay. Therefore, the official notice is justified.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 48-56 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed "computer readable medium" is not disclosed in the specification and therefore is considered new matter. Further, since th" medium is not described in the specification, the examiner is unsure as to whether the medium can be a "transmission medium", which would cause the claims to become non statutory and be rejected under 35 U.S.C. 101.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3, 5-6, 10-11, 18, 20, 22-23, 27-28, 35-37, 38-40, 48, and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gainey et al. (US 2004/0157551).

Regarding claims 1, 18, 48, and 57. Gainey teaches a method and apparatus for detecting the presence of a signal on one of at least two frequency channels in a frequency translating repeater for use in wireless local area network (WLAN) operating according to a protocol, (abstract) the apparatus comprising:

a radio frequency interface; (figure 3 item 320 and 321)

a processor; (figure 3 Micro Processor) and

a memory coupled to the processor and the radio frequency interface, (figure 3, micro processor, further par. 46 explains the processor can be a DSP or other micro programmable controller, thus having an included memory) the memory containing instructions for causing the processor to:

establish a first threshold associated with a first of the at least two frequency channels and a second threshold associated with a second of the at least two frequency channels; (par. 46 explains different types of detection circuits and states that an adjustable threshold control can be used for the channels, thus reading on establishing thresholds for the channels to be monitored.)

monitor the first and second frequency channels to detect the signal thereon in accordance with a first detection mode including the first threshold and the second threshold; (par. 44-46, detect if a signal is present on either of the two frequency

channels, and the detection circuit can be an adjustable threshold control, par. 46 also shows the detection being done by determining if a voltage is above a predetermined threshold, indicating activity on the channel) and

qualify, if the signal is detected, to determine whether the detected signal is a wanted signal or an unwanted signal. (par. 44, i.e. determine if the detected signal is a WLAN signal or noise or some other unwanted signal.)

Regarding claims 3 and 20. Gainey further teaches wherein the instructions further cause the processor to add a delay to the signal after the signal is detected, and wherein a detection bandwidth associated with the monitoring is less than a group delay associated with the signal. (par. 42)

Regarding claims 5 and 22. Gainey further teaches wherein the instructions further cause the processor to refine the first threshold and the second threshold if no signal is detected. (par. 46, i.e. adjustable threshold controls)

Regarding claims 6 and 23. Gainey further teaches wherein the first detection mode includes an analog detection mode, not involving the processor directly. (par. 37 and figure 3 items 370-371, further par. 44)

Regarding claims 10 and 27. Gainey further teaches wherein the instructions further cause the processor to monitor the first and second frequency channels to detect a signal thereon in accordance with a second detection mode including the first threshold and the second threshold when the detected signal is detected. (par. 46, the first mode is the analog detection explained in par. 44, the second mode is the microprocessor performing the determining explained in par. 46)

Regarding claims 11 and 28. Gainey further teaches wherein the second detection mode includes a digital detection mode. (par. 46, DSP or micro processor performs detection, thus being digital)

Regarding claims 12 and 29. Gainey further teaches wherein the instructions further cause the processor to override the first detection mode with a second detection mode. (par. 46, the first mode is the analog detection explained in par. 44, the second mode is the microprocessor performing the determining explained in par. 46, DSP or micro processor performs detection, thus being done after the first detection mode, i.e. overriding)

Regarding claim 35. Gainey further teaches an IF unit, capable of down-converting the signal on an RF band and selecting one of the first and the second frequency channels for transmission. (figure 3 items 335, 350)

Regarding claim 36. Gainey further teaches wherein the IF unit is configured to filter the down converted signal. (figure 3 item 335)

Regarding claim 37. Gainey further teaches wherein the IF unit is configured to add a delay to the down converted signal during a period the signal is not detected and prior to enabling a transmission. (see figure 3 items 360-361, which come after the signal is detected and delay the signal prior to transmission)

Regarding claim 38. Gainey further teaches a detection unit associated with each of the at least two frequency channels. (figure 3, Detection and Control Unit)

Regarding claim 39. Gainey further teaches wherein the detection unit includes at least one of: a diode detector at an intermediate frequency (IF), a diode detector at a

base band frequency, a matched filter at the IF, a matched filter at a radio frequency (RF). (figure 3 items 370 and 371)

Regarding claim 40. Gainey further teaches a converter to digitize the signal to form a digitized signal and wherein the detector unit is further configured to detect the digitized signal. (figure 3 items 380 and 381)

6. Claims 2 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gainey et al. (US 2004/0157551) in view of Sumi (US 4081752).

Regarding claims 2 and 19. Gainey teaches the limitations of the previous claims.

However he does not specifically disclose the idea of using saw tooth process to determine thresholds. The examiner previously took official notice on this limitation which is now being challenged by the applicant. Therefore, the examiner is providing the following reference to show that this idea is well known in the art and would have been obvious to one of ordinary skill in the art at the time of invention.

Sumi (US 4081752) teaches at column 24 lines 38-46 the idea of using a saw tooth control for establishing thresholds (i.e. maximum frequency using saw tooth control).

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to utilize the teachings of Sumi with the teachings of Gainey. The motivation for doing so would have been to allow for utilizing a well known technique to

improve the scanning operation of the receiver. (Sumi column 3 lines 28-35)

7. Claims 4 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gainey et al. (US 2004/0157551) in view of Peterson (US 6574198).

Regarding claims 4 and 21. Gainey teaches the limitations of claims 3 and 20.

However, he does not specifically disclose that the delay is less than a timeout parameter associated with the protocol. The examiner previously took official notice on this limitation, which is now being challenged. Therefore, the following reference is provided.

Peterson teaches at column 5 lines 4-18, the idea that a delay timer is set less than a time out period, to signify the loss of a signaling link.

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to utilize the teachings of Peterson with the teachings of Gainey. The motivation for doing so would have been to allow for a simple technique to signify when a signaling link has been lost. (Peterson column 5 lines 4-18)

8. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gainey et al. (US 2004/0157551) in view of Weaver, Jr. et al. (US 6108364).

Regarding claim 45. Gainey teaches the limitations of the previous claims.

However, he does not specifically disclose the idea of the use of a saw filter to add a delay. The examiner previously took official notice on this feature, which is now being challenged by the applicant. Therefore, the following reference is provided.

Weaver, Jr et al. teaches in column 6 lines 35-40 and column 10 lines 40-42 the use of a SAW filter to add a delay.]

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to utilize the teachings of Weaver Jr. with the teachings of Gainey. The motivation for doing so would have been to allow for using a simple and well known technique for adding delay. SAW filters allow for a simple and effective way of adding several hundred nanoseconds to tens of microseconds at the cellular frequency. (Weaver Jr. column 10 lines 40-45)

9. Claims 7-9, 24-26, 41 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gainey et al. (US 2004/0157551) in view of Lusky et al. (US 7315573).

Regarding claims 7 and 24. Gainey teaches the limitations of the previous claim.

However, he does not specifically disclose the idea of causing the processor to record information associated with the detected signal in an event log if the detected signal is determined to be the unwanted signal.

Lusky teaches a system and method for monitoring channels (title and abstract). He disclose the idea of recording information if the signal is an unwanted signal in column 5 lines 44-47. He explains the idea of monitoring and recording any noise. (i.e. noise is an unwanted signal)

Therefore it would have been obvious for one of ordinary skill in the art at the

time of invention to utilize the teachings of Lusky with the teachings of Gainey. The motivation for doing so would have been to allow for a system that can analyze channel impairments and determine optimal parameters. (Lusky column 2 lines 65-67)

Regarding claims 8 and 25. Gainey further teaches wherein the instructions further cause the processor to disable a transmission of the signal over the radio frequency interface if the detected signal is determined to be the unwanted signal. (par. 44, detect if the signal is WLAN or noise or some unwanted signal, the system will not repeat a signal that is detects as noise)

Regarding claims 9 and 26. Gainey further teaches wherein the instructions further cause the processor to refine the first and the second threshold using the recorded information. (par. 46, the adjustable threshold controls allows for this limitation to be understood from the Gainey reference.)

Regarding claim 41. Lusky further teaches wherein the detection unit is further configured to: compare a power level associated with the signal; monitor the signal over a time interval to determine a noise estimate; and comparing the current signal power to this estimate as part of the detection process. (column 6 lines 52 to column 7 line 7)

Regarding claim 46. Gainey further teaches wherein the detection unit is further configured to monitor the at least two frequency channels at the same time. (par.44) Lusky teaches detecting noise in operating channels column 5 lines 44-47. The combination reads on the limitations of this claim.

10. Claims 13, 30, 49, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gainey et al. (US 2004/0157551) in view of Leslie et al. (US

6404755).

Regarding claims 13, 30, 49, and 58. Gainey teaches the limitations of the previous claim.

However, he does not specifically disclose starting a timer to measure an elapsed time associated with the detected signal if the detected signal is determined to be the wanted signal; and enabling a transmission of the detected signal in accordance with an override mode.

Leslie teaches this limitation in column 26 lines 15-26. (i.e. setting a timer when the signal is received and enabling transmission of the detected signal in accordance with an override mode)

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to utilize the teachings as in Leslie with the teachings as in Gainey. The motivation for doing so would have been to allow for a system that can efficiently retransmit received signals.

11. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over the grounds of rejection as applied to claim 41 in further view of Irving et al. (US 6163276).

Regarding claim 47. Gainey and Lusky teach the limitations of the previous claim 41.

However, they do not teach the idea of the converter being under sampled to monitor noise.

Irving teaches this limitation in column 4 lines 43-55.

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to utilize the teachings as in Irving with the teachings as in Gainey and Lusky. The motivation for doing so would have been to provide a simple and cost effective way of detecting the noise in a received signal.

Allowable Subject Matter

12. Claims 14-17, 31-34, 42-44, 50-56, and 59-65 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL T. THIER whose telephone number is (571) 272-2832. The examiner can normally be reached on Monday thru Friday 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on (571) 272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. T. T./
Examiner, Art Unit 2617
8/26/2008

/Duc Nguyen/
Supervisory Patent Examiner, Art Unit 2617

